

### **Amendments to the Drawings:**

The attached sheet of drawings include changes as listed below. The attached replacement sheet replaces the original sheet 1 of 5.

The changes are as follows.

- a. In figure 1, the reference number 19 and associated line are removed.

Attachment: 1 Replacement Sheet

## **R E M A R K S**

The office action of March 24, 2006, has been reviewed and its contents carefully noted. Reconsideration of this case, as amended, is requested. Claims 1-4, 12-38, and 47 remain in this case, claims 5-11, 39-46 being cancelled by this response.

### **Preliminary Comments**

- a. The numbered paragraphs below correspond to the numbered paragraphs in the Office Action.
- b. The specification, pages 5, 7, 12 and 13 is amended to add explicit references to various reference numbers which appeared in the drawing as filed to the detailed description of the invention
- c. Claim 1 is amended to incorporate the material from dependent claims 5-10 as filed, and those dependent claims have been canceled.

Specifically, the elements (a)-(d) in claim 1 as filed have been split into element 1(a), a metadata database (see fig. 1, item 18), incorporating elements (a)-(c) as filed and the material from claims 5-6; and element 1(b), a results database (see fig. 1, item 8), incorporating element (d) as filed and the material from claims 8-10. Claim 1 has also been amended to explicitly recite that the repository is stored in computer memory, to address the section 101 rejection (see below).

No new matter is introduced by this amendment.

- d. Claim 15 is amended in conformity with the amendment to claim 1, discussed above.

Specifically, claim element 15(a)(iv) defines the contents of the data repository. The element as filed duplicated claim 1 as filed, so this element has been amended to include the amendments to claim 1. Also, step 15(d) ("displaying information...") has been added to address the section 101 rejection.

- e. Dependent claims 39-46 have been canceled, as these claims have been incorporated into amended element 15(a)(iv).

No new matter has been added by this amendment.

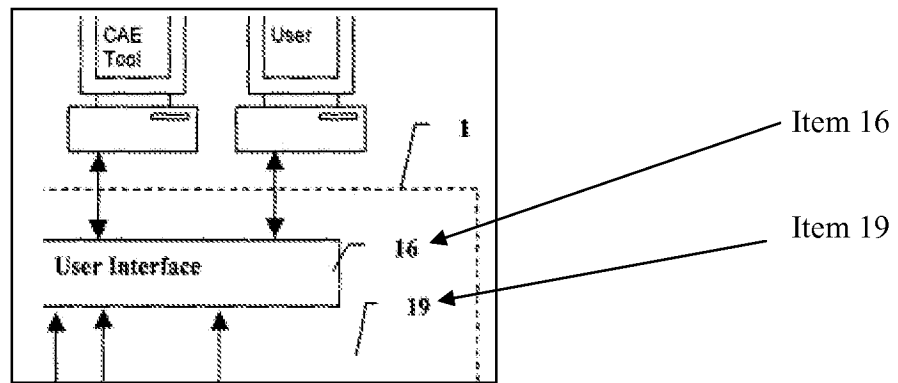
- f. Claims 2, 3, 4, 34, 37 and 38 have been amended to conform to the amended terminology of amended claims 1 or 15 on which they depend.
- g. Claims 13 and 14 have been amended to incorporate the structural element of the customer database (figure 1, item 9) in place of claiming that the datasets "has an owner".
- h. Claims 17-20 have been amended to change "documents" to --datasets--. This is consistent with the terminology in the specification as filed, see page 6, lines 20ff.
- i. Drawing page 1 is replaced to delete reference number 19 and its associated line from figure 1. That item was included in error, as it did not have any associated element in the drawing and was not called out in the detailed description.

### **Objections to the Drawing**

- 4. The drawings were objected to for the following reasons: (a) "that they do not include the following reference sign(s) mentioned in the description: item 16 (Fig 1); item 19 (Fig 1); item 42 (Fig 3); item 43 (Fig 3); item 73 (Fig 7); and item 74 (Fig 7)" and (b) "because they include the following reference character(s) not mentioned in the description: Fig 5 and Fig 7".

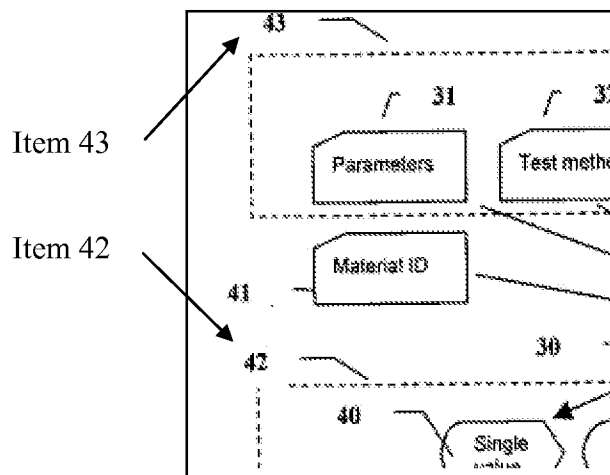
As to the objection in the first paragraph of section 4, the Examiner listed six reference numbers as being in the description, but not in the drawing. All of the "missing" numbers are, in fact in the drawings as filed. Applicants' attorney has downloaded the filed drawings from the PAIR system, and what follows is the "missing" numbers and extracts from the drawings as filed, with the reference numbers shown by an arrow.

In figure 1: item 16 and item 19

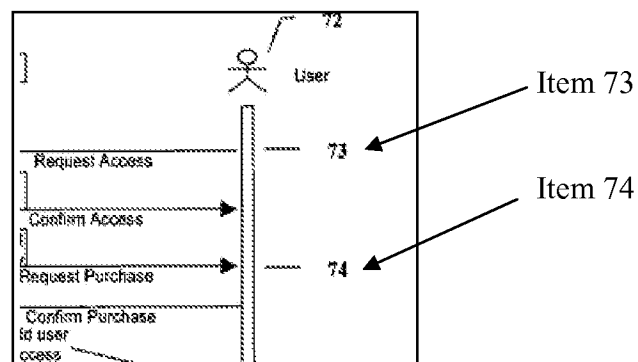


It should be noted here, however, that item 19 shown in this detail was in error, and therefore has been removed in the provided amended drawing sheet 1.

In figure 3: item 42 and item 43



In figure 7: item 73 and item 74



As to the objection in the second paragraph of section 4, that the drawings include reference numbers which are not in the specification, Applicants point out that both fig. 5 and fig. 7 are mentioned in the specification. Specifically:

- "fig. 5" is listed on page 4, line 12 in the "Brief Description of the Drawing".
- "fig. 7" is listed on page 4, line 16 in the "Brief Description of the Drawing".

On reviewing the application as filed, Applicants believe that the objections to the drawing stated above, that the drawing did not include reference numbers which were mentioned in the description, was actually stated backward - in fact, *the description did not mention the listed reference numbers which appeared in the drawing* as filed. This has been addressed by amending the detailed description of the invention or changing the drawing, as follows:

- Item 16 has been added to page 5, third paragraph.
- Item 19 has been removed from figure 1.
- Items 42 and 43 have been added to page 7, first full paragraph.
- Items 73 and 74 have been added to page 13, third paragraph.
- An explicit reference to Figure 5 has been added to page 12, line 19.
- An explicit reference to Figure 7 has been added to page 12, line 23.

Reconsideration and withdrawal of the objections are respectfully requested.

#### **Rejection(s) under 35 U.S.C. §101**

5. The claims were rejected under 35 U.S.C. 101, the Examiner stating that the claimed invention is directed to non-statutory subject matter.

Independent claims 1 and 15 have been amended to address Examiner's concerns. Specifically, the wording stored in a computer memory has been added to claim 1, to clarify that the repository has a physical embodiment. The "computer memory" is inherent in the entire

discussion of the invention in the specification, and is shown in block form in the figures. The step of displaying information has been added to claim 15, to clarify and provide a real-world result. The step of displaying data in various forms is discussed in numerous places in the specification, and one such display is shown in figure 5. No new matter is added by either of these amendments.

As to claim 1, Applicants respectfully point out that the claim is directed to an apparatus or article (a data repository residing in computer memory), rather than to a method. Therefore, Examiner's statement that " In the above limitation, there is no physical transformation being claimed, a practical application would be established by a useful, concrete and tangible result", and the follow-up comments about "It is unclear as to what kind of tangible output is obtained by these limitations" are not applicable. An article does not inherently have a "result" or a "physical transformation", nor is it required for section 101 that an article be claimed to have a "tangible output". One may claim an improved wrench comprising a listed group of parts, for example, and there is no "physical transformation" involved. One need not claim the result of using the wrench on a bolt, and the wrench, sitting on a shelf, has no "concrete and tangible output". It is just a wrench comprising an arrangement of levers, jaws, cams, etc.

In this case, the invention claimed in claim 1, as amended, is a data repository residing in a computer memory comprising a plurality of material property datasets associated with samples of materials. The data repository has a physical existence, to the same extent as the wrench, and is thus patentable as an article of manufacture, for all that its components are datasets residing in computer memory rather than cams or levers. Applicant also points out that the repository is claimed to be associated with materials and tests on materials, all of which involve physical objects.

As to method claim 15, by the addition of step (d) "displaying information from at least one dataset stored in step (a) and accessed by the user in step (c) on a display", Applicant believes a sufficient tangible result has been supplied.

Applicants believe that, with these amendments, all of the claims now recite patentable subject matter and are thus allowable. Reconsideration and withdrawal of the rejection are respectfully requested.

### **Rejection(s) under 35 U.S.C. §102**

6. Claims 1-4 and 13-14 were rejected under 35 U.S.C. 102(e) as being anticipated by US PGPub 2005/0131861 to Arritt et al (hereafter Arritt et al).

Applicants respectfully disagree with the rejection.

Claim 1 has been amended to clarify the repository structure of the invention. Specifically, the repository of the invention comprises two databases: a metadata database and a results database. The metadata database is made up of metadata which describe or define the instances of the metadata database, and also metadata which describe or define the instances of the results database using information on the material, sample and test which is represented by information (instances) in the results database. The results database comprises information of different types - data points, equations, graphs, data arrays, pictures - all contained in the one database, with the metadata in the metadata database providing the necessary definition of the information so that the different types of data can be properly considered and displayed.

This data architecture, using metadata to describe metadata in the metadata database and also the results in the results database does not use the commonly held principle of one type of data = one table. Instead, it allows the extensibility needed to store highly varied material data without reconfiguring the database each time a new type of property needs to be added to the system.

It is true that the subject of the data that is being stored in the present invention and Arritt address the same field of endeavor - material test labs - the kind of supporting information being stored (such as information on material, sample and test ) is by nature similar. That is where the similarity ends, however.

Arrit is an instrumentation information database which uses a number of relational databases or tables to store information about the utilization of test equipment. Arritt's application explicitly describes a plurality of database tables, and does not teach or suggest the use of a single results database with a separate associated metadata database.

Therefore, it is respectfully suggested that the rejection of amended independent claim 1 as being anticipated by Arritt is overcome. Dependent claims 2-4 and 13-14, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Reconsideration and withdrawal of the rejection are respectfully requested.

### **Rejection(s) under 35 U.S.C. §103**

8. Claims 5-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0131861 to Arritt et al as applied to claim 1 above, and further in view of the dissertation titled "Pulsed DC Reactive Magnetron Sputtering of Aluminum Nitride Thin Films" by Jung Won Cho (hereafter Cho)..

Claims 5-11 have been canceled, rendering the rejection of these claims moot. As to claim 12, this claim is dependent upon amended independent claim 1, which Applicants believe is patentable for the reasons given in the discussion of the section 102 rejection, above. The argument above as to the novelty of amended claim 1 is repeated here by reference.

Specifically, Arritt does not teach or suggest the use of a single results database having results information of disparate types, with a separate associated metadata database defining the information in the results database, as claimed in the current amended claim 1.

Cho is a dissertation having a printed table with textual information. The table contains information of a single type - text. To the extent that Cho's table might be said to have metadata, the metadata is simply titles or headings in the same table. Thus, Cho does not provide what Arritt lacks.

A combination of Arritt and Cho would be a printed list of instrumentation utilization having labels and values on the list, or a computerized instrumentation information database which uses a number of relational databases or tables to store information about the utilization of test equipment testing characteristics of crystals.

Applicants believe the claims, as amended, are patentable over Arritt and Cho, individually and in combination, for the reasons given above in respect to the section 102 rejection of claim 1, from which claim 12 depends.

Reconsideration and withdrawal of the rejection is respectfully requested.

9. Claims 15-19, 21-26, 28-30, 34-38, and 46-47 were rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0131861 to Arritt et al in view of US PGPub 2003/0069795 to Boyd et al (hereafter Boyd et al).

Independent claim 15 has been amended to include the novel depository structure of claim 1. The argument above as to the novelty of amended claim 1 is repeated here by reference.

As discussed above, Arritt does not teach or suggest the use of a single results database having results information of disparate types, with a separate associated metadata database defining the information in the results database, as claimed in the current amended claim 1.

Boyd is a data management system for materials. The Boyd application explicitly recites that the different types of information on the system for producing certificates of analysis reside in different databases - at the least, a raw material specification database, a raw material property database "which can be ... on a separate private server" (par. 0041), and a file of certificates of analysis "...electronically stored on a private network of the product manufacturer" (par 0062). Boyd discusses accepting information from instrumentation systems as disclosed in Arritt.

The combination of Arritt and Boyd would result in, essentially, Boyd's system using Arritt's instrumentation information. Neither Arritt nor Boyd teach how to handle a variety of datasets other than to create a multiplicity of tables, therefore the combination of the two references cannot supply what both lack.

Dependent claims 16-19, 21-26, 28-30, 34-38, and 47 (claim 46 being canceled), should be patentable for the reasons stated above with respect of independent claim 15 upon which they depend, as well as for the further elements which they add to claim 15.

Applicants believe the claims, as amended, are patentable over Arritt and Boyd, individually and in combination. Reconsideration and withdrawal of the rejection is respectfully requested.

10. Claim 20 was rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0131861 to Arritt et al in view of US PGPub 2003/0069795 to Boyd et al as applied to claim 19 above, and further in view of US PGPub 2004/0243580 to Markki et al (hereafter Markki et al).

Claim 20 is dependent upon claims 19, 17, 16 and, finally, amended independent claim 15. The patentability of claims 15-19 over Arritt and Boyd was discussed above, which discussion is repeated here by reference, and claim 20 merely adds a further limitation to those claims (a specific computer protocol). Markki does disclose SOAP protocol, but Applicants are not claiming a standard computer protocol, as such, and Markki does not teach or discuss the repository structure required by amended claim 15. With claim 20 patentable over Arritt and Boyd for the reasons stated above, Markki does not add what Arritt and Boyd lack. Reconsideration and withdrawal of the rejection is respectfully requested.

11. Claims 27 and 31-33 were rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0131861 to Arritt et al in view of US PGPub 2003/0069795 to Boyd et al as applied respectively to claims 26 and 15 above, and further in view of US Patent No 6,484,173 to O'Hare et al.

Claim 27 is dependent upon claim 26, which in turn depends on claim 15. Claims 31-33 also depend on claim 15. The patentability of claims 15 and 26 over Arritt and Boyd was discussed above, which discussion is repeated here by reference. O'Hare discloses control of access to a storage device, but does not teach or discuss the repository structure required by amended claim 15. With claims 15 and 26 patentable over Arritt and Boyd for the reasons stated above, O'Hare does not add what Arritt and Boyd lack. Reconsideration and withdrawal of the rejection is respectfully requested.

12. Claims 39-45 were rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0131861 to Arritt et al in view of US PGPub 2003/0069795 to Boyd et al as applied

to claim 15 above, and further in view of the dissertation. titled "Pulsed DC Reactive Magnetron Sputtering of Aluminum Nitride Thin Films" by Jung Won Cho.

Claims 39-46 have been canceled by this amendment, making the rejection of these claims moot. Reconsideration and withdrawal of the rejection is respectfully requested.

### **Conclusion**

Applicants believe the claims, as amended, are patentable over the prior art, and that this case is now in condition for allowance of all claims therein. Such action is thus respectfully requested. If the Examiner disagrees, or believes for any other reason that direct contact with Applicants' attorney would advance the prosecution of the case to finality, he is invited to telephone the undersigned at the number given below.

"Recognizing that Internet communications are not secured, I hereby authorize the PTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file."

Respectfully Submitted:  
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